

REMARKS

Claims 124-129 are pending in this application. The claims are not amended; however, applicants herewith provide a clean set of the pending claims for the convenience of the examiner. The Office Action is discussed below:

Anticipation Rejection and Response to Arguments:

On pages 2-6 of the office action, the examiner has maintained the alleged anticipation rejection of claims 124-129 in view of Dijkstra *et al.* ("Crosslinking of Ultra-high Molecular Weight Polyethylene in the Melt by Means of Electron Bean Irradiation" published May, 1989) and claims 127-129 in view of Hyon *et al.* (U.S. 6,168,626, filed May 6, 1996). Applicants disagree with the examiner and submit that the examiner has not addressed the responses and arguments provided in the previous responses, including the response filed on August 26, 2009.

The examiner has asserted that "[t]here is no requirement that instant claims 127-129 to specify the order of heating and irradiation." (see page 2 of the Office Action). However, the examiner states that the prior art rejection stands because the claims 127-129, as written, can be interpreted as reciting a method of heating before irradiation (cited Dijkstra) and also a method of irradiation before heating (cited Hyon). The examiner has not clarified what is meant by "claims do not recite more than one heating and/or irradiation step or simultaneous heating and irradiation" and on the other hand, opines that "Even if this fact were disclosed in the Patent, there is no mention or evidence that the material is heated or cooled between passes." The examiner asserts that the "argument is irrelevant to the instant claims which do not require more than one heating and/or irradiation step." The examiner also asserts that the applicants' "argument is not persuasive because nothing in the disclosure of the instantly claimed method in the specification mentions that there are pauses in between passes or irradiation or the material is cooled and then reheated during the process for irradiating the UHMWPE. There is no evidence of record to support that the allegation that the argued process is clear to one skilled in the art."

Applicants disagree with the examiner and submit that the specification discloses a method of heating (at the recited temperature) before irradiation and also a method of irradiation before heating (at the recited temperature), as the simultaneous steps of heating then irradiation, and irradiation then heating are described in the specification. Thus, the argued process is clear to one skilled in the art. In this context, applicants invite the examiner to consider that:

"By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971), *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973)." (see MPEP §2163.07 (a) Rev. 6, September 2007).

Applicants agree that claims do not recite more than one heating and/or irradiation step or simultaneous heating and irradiation. However, the specification fully supports the steps in claim 124 that recites:

"b) heating the preform to a temperature above the melting point of the UHMWPE to about 230°C; and c) subsequently irradiating";

and the steps in claim 127 that recites:

"b) irradiating the preform; and
c) heating the preform to a temperature from above the melting point of the UHMWPE to about 300°C."

As clarified above and previously, it is clear to those who are familiar with the van de Graaff generator, that is, one skilled in the art would know that the specification discloses a method of heating (at the recited temperature) before irradiation and also a method of irradiation before heating (at the recited temperature). Repetitions of the steps disclosed in claims 124 and 127 are necessary for a desired radiation dose, as explained in the specification.

Applicants point out that Dijkstra *et al.* (as cited by the examiner) are familiar with the van de Graaff generator (see Dijkstra *et al.* page 866, col. 2) and referred to their previous reference (see Dijkstra *et al.* 1987 Polym. Bull. 17, p.507) regarding the process of a van de Graaff generator, as known in the art. Therefore, it is evident that the argued process is clear to one skilled in the art.

Applicants also refer to the response filed in parent application (Serial No. 10/197,209) regarding irradiation by van de Graff generator (see pages 5-7 of the response filed May 14, 2008) and clarify that when the sample moves outside the e-beam the sample does not receive any radiation dose. However, since the heating continued when the sample is outside of the e-beam, the sample receives heating before each dose of irradiation. Also, the sample is irradiated after each heating. In other words, radiation is not applied to the sample when moved outside the e-beam. Thus, the sample is heated prior to the next dose of irradiation and also heated after each dose of irradiation. In this context, applicants request the examiner to consider the dictates of the MPEP that:

"A CLAIM TERM WHICH HAS NO ANTECEDENT BASIS IN THE DISCLOSURE IS NOT NECESSARILY INDEFINITE

The mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite. There is no requirement that the words in the claim must match those used in the specification disclosure. Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision."

See MPEP § 2173.05(e) (Rev. 6, September 2007 at page 2100-225).

Thus, there is provided an evidence of sequential repeated passes of irradiation and the sample received heating before "each dose of irradiation" and irradiated subsequent to heating step. Apparently, the examiner has considered that the process continued as heating and cooling after each pass of irradiation. As clarified above, it is evident to one skilled in the art that the heating continued after each pass of irradiation, that is, also heated before "each dose of irradiation". To assist the examiner,

applicants provide photographs of a common van de Graaff generator (see attached Exhibits 1-4).

Regarding the priority claim, applicants refer to the Rule 1.131 Declaration of Merrill *et al.*, filed June 8, 2007. Applicants submit that the examiner has not properly construed the declarations of record.

The MPEP instructs:

The Examiner must then weigh all the evidence before him or her, including the specification and any new evidence supplied by applicant with the evidence and/or sound scientific reasoning previously presented in the rejection and decide whether the claimed invention is enabled. The Examiner should never make the determination based upon personal opinion. The determination should always be based on the weight of all the evidence.

MPEP § 2164.05 (Rev. 6, September 2007 at 2100-199) (emphasis in original).

The examiner also has misconstrued the Rule 131 Merrill declaration (filed June 8, 2007) by stating that it is limited to the melt irradiation embodiment. This is clearly not the case. Applicants refer the examiner to Dr. Orhun Muratoglu's declaration submitted in a related application 11/184,803, in which Dr. Muratoglu reviewed the Rule 1.131 declaration, filed on July 16, 2004, and also found that Irradiation and Subsequent Melting embodiment was conceived and reduced to practice prior to January 20, 1995.

Applicants remind the examiner regarding the evidence in the Declaration of Merrill *et al.*, filed June 8, 2007 under Rule 1.131, which the examiner agreed (see Office Action of September 7, 2007, page 2) that the evidence presented shows reduction to practice of the instantly claimed methods before January 20, 1995. It also was evident that the polyethylene was first melted and then irradiated (see the Declaration of Merrill *et al.*, sections 10-11 and item b of Exhibit 1, for example), which sufficiently provides the evidence of reduction to practice of the claimed method. Hence, a method that involves irradiation is followed by subsequent melting to treat a polyethylene preform was reduced to practice before January 20, 1995. Accordingly, Hyon is not a prior art to the claimed invention. Applicants reiterate, the examiner has

misconstrued the Rule 131 Merrill declaration and has not addressed the above arguments and the clarifications.

On pages 2-5 of the Office Action, the examiner has maintained the rejection in view of Dijkstra *et al.*, however, did not provide any response to the arguments submitted on October 26, 2007 and August 26, 2009, but indicated that no new arguments have been presented. Applicants request the examiner to consider the arguments presented previously (for example, see pages 4-5 of the response filed on October 26, 2007; and page 5 of the response filed of August 26, 2009) and to withdraw the rejection.

One page 2 of the Office Action, the examiner contends that Dijkstra *et al.* disclose a method of "heating before irradiation", thus anticipates the claimed invention. However, the examiner has not addressed that Dijkstra *et al.* do not disclose each and every element recited in the claims, as clarified in the previous responses and as discussed below. Thus, Dijkstra *et al.* do not anticipate the claimed invention.

On pages 4-5 of the Office Action, the examiner has referred that Dijkstra *et al.* disclose a process for crosslinking UHMWPE in the melt comprising heating a preform in a nitrogen atmosphere at 200°C with an electron beam. Applicants point out that instant claims recite heating the preform to a temperature above the melting point of the UHMWPE to about 230°C (see claim 124) or more (for example, 300°C in claim 127). Therefore, Dijkstra *et al.* does not disclose the limitations as recited in the independent claims.

In view of the above clarifications and arguments, applicants request withdrawal of the anticipation rejection.

Double Patenting Rejection:

On pages 6-7 of the office action, the examiner maintains the provisional rejection of the claims 124-127 under the judicially created doctrine of obviousness-type double patenting and alleges as being unpatentable over claims 124-129, 131-134, and

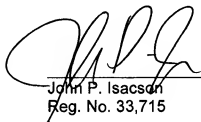
claims 124-125, 130, 143-146 of co-pending application serial nos. 10/197,209 and 09/764,445, respectively. In response, applicants reiterate, because applicants have not received any notice of allowance for the '209 or the '445 applications, the merits of this provisional rejection need not be discussed by at this time. See MPEP § 822.01 (Rev. 5, August 2006).

REQUEST

Applicants submit that claims 124-129 are in condition for allowance, and respectfully request favorable consideration to that effect so that an interference can be declared with applicants as the senior party by virtue of the priority afforded by the priority applications. The examiner is invited to contact the undersigned at (202) 416-6800 should there be any questions.

Respectfully submitted,

March 15, 2010
Date



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Exhibit-1:

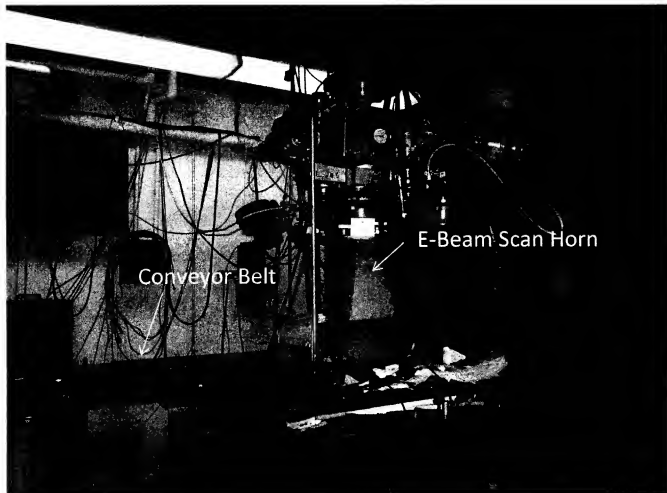


Exhibit-2:

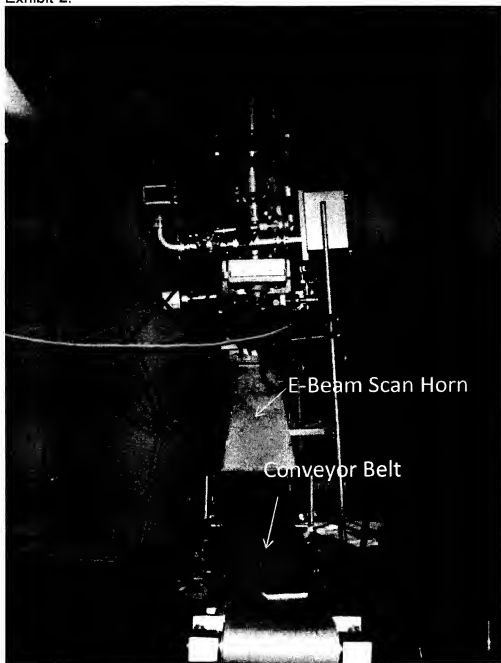


Exhibit-3:

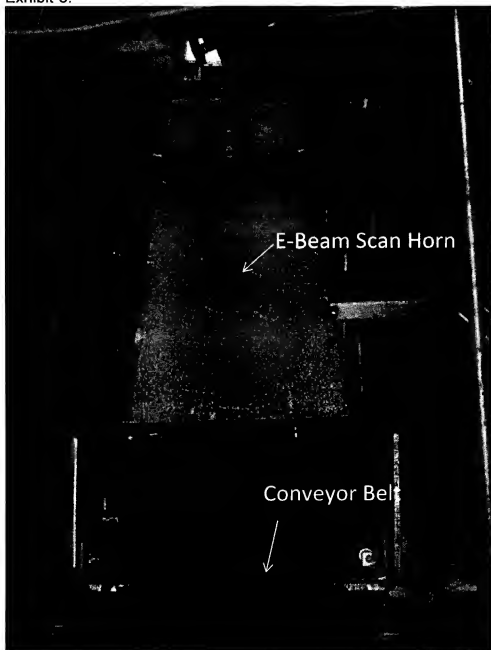


Exhibit-4:

